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ABSTRACT

This is one of a series of units for environmental education developed by the Highline Public Schools. This unit on technology, the environment, natural resources, and human values, is designed for upper grade elementary school pupils. Each of the 10 lessons is designed for a 1-2 hour period of time. Each lesson includes the concept of the lesson, materials needed, notes to the teacher, procedure, and suggested additional activities. The materials were tried and evaluated; evaluation data may be obtained from the Highline Public Schools. (RH)

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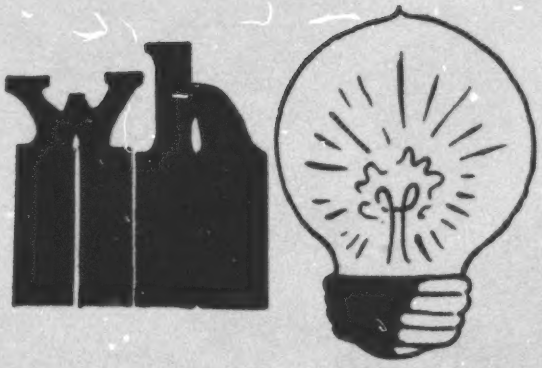

who has a better idea?

by Gordon Hearst

An Environmental Learning Experience for 4th-6th grade levels. One of many ELE Paks available for all areas.

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NATURE KNOWS BEST

PROJECT ECOLOGY TITLE III

The Kids Who Participated in the Pilot Evaluation Program

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Ron Averill	Pat Hebrank	Jim Oakes
Val Blevins	Cheryl Herth	Jean Phelps
Brian Budworth	Maureen Hughes	Clyde Quinn
Judy Calabrese	David Jarman	Kristi Rasmussen
Bev Clos	Jane Jones	Robin Rowland
Brian Crumbley	Tom Love	Kevin Scott
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The Readers Who Studied, Critiqued & Offered Suggestions & Ideas for Improvement

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The Author/Teacher Who Developed This Environmental Learning Experience (ELE)

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Evaluation Results Regarding This ELE May Be Obtained by Including This Page and a Self Addressed Stamped Envelope To

Highline Public Schools, District 401
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EVERYTHING IS CONNECTED TO EVERYTHING ELSE

PROJECT ECOLOGY

THERE IS NO SUCH THING AS A FREE LUNCH

PROJECT ECOLOGY TITLE III

EVERYTHING MUST GO SOME WHERE

PROJECT ECOLOGY TITLE III

BACKGROUND INFORMATION

WHAT IS AN I. C. GAS ENGINE?

An internal combustion motor is powered by gasoline which explodes within a confining cylinder resulting in exhausts which are all, directly or indirectly, harmful to man.

WHAT IS A FOUR STROKE CYCLE?

NOTE: Page 3 General Theories of Operation

1) The intake stroke draws an air-fuel mixture into the cylinder.
2) The compression stroke squeezes the air-fuel mixture between the piston top and cylinder head.
3) The power stroke forces the piston downward because of the ignited mixture of air and fuel.
4) The exhaust stroke forces the burnt gases out of the exhaust.

WHAT IS A FOSSIL FUEL?

A fossil fuel is produced from the remains of living plants or animals.

HOW HAS THE GAS ENGINE AFFECTED OUR ENVIRONMENT?

Since most forms of modern transportation make use of the gas engine, it has made many changes in our environment, both directly and indirectly, and in a large part man's use of the engine will be a crucial factor in his future.

FILMS: "A Matter of Time" - It's only a matter of time until man has used all the natural resources that nature has provided.

"From the Face of the Earth" - Filmed in Seattle, this film shows a family living underground because the surface is too polluted to support life.

CONCEPTUAL OVERVIEW OF UNIT

1. The I. C. engine is the power base for mary forms of transportation.
2. Natural resources are used in transportation.
3. We use natural resources on demand.
4. Many natural resources are used and then leave as pollutants.
5. The search for fuel creates environmental problems.
6. Consumption of natural resources depends on what man perceives to be his needs.
7. Natural resources are limited and irreplaceable.
8. Man, through technology, creates substitutes for natural resources.
9. Man's attitudes have resulted in considerable pollution problems.
10. Survival of the reasonable man in the future will depend on decisions made in the present.

NOTES TO THE TEACHER

Each lesson in this project is planned for 1-2 hours. They may be used as two-a-day lessons for a week or one-a-day for two weeks. You may omit any of the lessons you wish and spend more time than is suggested on any of the lessons if you wish to cover the material in depth.

Throughout the procedures section of each lesson, everything that you are to say to the students has been written in script type but you certainly are not limited to this or must you follow it word for word. It is only a guide to those who are unfamiliar with the material.

There will be two internal combustion (I. C. from now on) engines in the kit. One is in running order, the other is a breakdown model. The tools to disassemble the breakdown model are in the kit. To disassemble the other model or engines from home, other tools will have to be brought from home.

When possible, activities and disassembling should be done on an individual basis or in pairs. Therefore, the disassembly of the model engine should begin the first day so all students have a chance to work on the engine. If the engine that runs is disassembled, please return it in running order. When demonstrators are needed, let students prepare and present it. When questions with lists are called for, accept all answers. The disassemblying of the motors should be continued throughout the entire unit.

When letter writing is called for, don't have the entire class write. There are a number of places throughout the unit when letters could be written so each child has an opportunity to write at least one.

Feel free to add any activities that you think help you in your presentation of the unit. The questions for discussion are only suggestions and use them only if they are appropriate for your particular teaching situation.

MASTER MATERIAL LIST

KIT ITEMS

1 break down display model I. C. engine
1 operational (working) I. C. engine
12 cotton balls
1 6" slotted screw driver
1 8" crescent wrench
1 10" smooth file
1 8" tongs
1 Briggs-Stratton Repair Instructor's Manual
1 General Theories of Operation manual
2 instruction sheets describing disassembly of engine
1 candle
1 glass jar (quart)
1 candle holder
2 goldfish
1 elodea (fresh water plant)

OTHER RESOURCES REQUIRED

1 wall map of United States
1 local road map
1 atlas
1 world almanac

OPTIONAL MATERIALS AVAILABLE FROM THE SCIENCE KIT CENTER

1 air sampler with directions
1 noise level indicator

LESSON 1

CONCEPT: The I.C. engine is the power base for many forms of transportation.

MATERIALS:
Two I.C. engines
gas
cotton ball
tools and manuals in kit
display board

PROCEDURE: Run the engine in the classroom before the students enter the classroom if possible. After 2-3 minutes, with the doors and windows closed stop the engine. After students enter room: *What do you notice about the room that is different? Has the environment of the room changed? What are the changes that you can observe?*

List these on the board - accept all observations - may discuss or clarify. Air out the room.

What would happen to you if you had to live in this environment all the time? The engine was run only 2-3 minutes. What would it be like in here if it were run all day?

At this point you may wish to follow a discovery method and have your students do some research and have them find the materials present in the exhaust of an I.C. engine. This would depend on the ability of your students. You may assign this task to a few people and then have them relate their findings to the rest of the class.

Here are some of the names of the materials that you observed in the air in this room:

1. *Carbon monoxide*
2. *Hydrocarbons*
3. *Nitric oxides*
4. *Lead compounds*
5. *Sulfur oxides*
6. *Particulate matter.*

These words could be used as spelling words for this week. Other lists will be given in later lessons.

Write the definitions of these words for tomorrow and find out if any of them are harmful to humans.

Identify the internal combustion engine (I.C. engine) as the source of these materials and gases.

Name the forms of transportation that use the I.C. engine as a source of power. I will write them on the board. (Jets and rockets are included.) Compare this with a list that don't use the I.C. engine.

There are more than 300 million cars in the world.

Students may begin after the first lesson to disassemble the model I.C. engine. This engine will not run but the major parts are there. The display board is color-coded and clearly marked. The students should learn the names of the engine parts, to identify them, and how to spell them. Individual work is best but working in pairs is sometimes necessary. Necessary tools for this are supplied in the kit.

Encourage students to bring small 4-cycle gas engines from home to disassemble and study. They will need to bring many of the tools they need from home.

The two yellow sheets supplied in the kit describe the procedure for the disassembly of small gas engines. The Briggs-Stratton manuals, also in the kit, will help on the disassembly of any small engine.

Let's find out what is meant by a 4-cycle engine.

This is explained in text and pictures on page 3 of the General Theories of Operation manual put out by Briggs and Stratton and supplied in the kit.

Career aspect may be introduced here - the mechanic does this type of work for a living. Have some students visit service stations and find out requirements for employees and amount of pay. Many boys (and some girls) hope to work in service stations in high school. Have some students search the want ads for several days looking for jobs that would require knowledge of I.C. engines.

EVALUATIVE ACTIVITY: *What are some of the waste products of an I.C. engine?*

EXTRA ACTIVITY: Call the U. of W. Engineering School and ask for a student to come out to the classroom and measure the levels of pollutants and to talk to the students about industrial hygiene as a career and a service to people.

LESSON 2

CONCEPT: Natural resources are used in transportation.

MATERIALS:
Kit engine
file
films: "Steel Making Today"
"Aluminum - Metal of Many Faces"
ditto
film projector

PROCEDURE: *What raw materials are needed to construct and operate an I.C. engine? Name some of the natural resources that are needed to produce these raw materials?*

METALS: Let a student file off a little metal from the finned part of the engine block and engine head to see if they can determine what kind of metal it is. (Aluminum, cast iron and steel are all used in the engine parts.)

In the film we are going to see, I want you to list all the natural resources that you see being used to produce this metal. Also, I want you to look for pollution as a result of the production of this metal.

One of the films will be enough. "Aluminum - Metal of Many Faces" is the best of the two. (30 minutes)

What forms of pollution did you see being produced in the production of this metal?

RUBBER: A synthetic rubber had to be developed to replace real rubber.

PLASTICS: Plastics are used in place of rare and expensive metals.

FUEL: All modern transportation systems use some type of fossil fuel either directly or indirectly. Explain the formation of petroleum supplies and that we are using up our supply faster than it is being produced. Nature is slow.

Make a list of appliances and machines that they have at home that use fossil fuels either directly or indirectly to operate.

EVALUATIVE ACTIVITY: *Name some of the natural resources we use in our modern day transportation systems both in construction and operation.*

SUGGESTED EXTRA ACTIVITIES:
1. Field trip to an aluminum or steel production plant. While on trip have students take note of people involved in each process.
2. Letters to a production plant asking for information about their products and what they are doing to conserve natural resources and protect the environment.
3. May add these words to vocabulary and spelling list:
    1. Gasoline
    2. Petroleum
    3. Aluminum
    4. Carburetor
    5. Combustion

LESSON 3

CONCEPT: We use natural resources on demand.

MATERIALS: Model engine
Tools

PROCEDURE: *Look at the list of energy consuming devices that you found in and around your home. How many of them are powered directly or indirectly by an I.C. engine? What fuel do these I.C. engines use?*

What device on our model I.C. engine prepares the fuel for burning (combustion)?

Carburetor. Use the kit model to show where the carburetor is located, what it looks like, what some of the various parts are supposed to do, and its over all function. This is explained on pages 8-14 in the General Theories of Operation manual in the kit.

Propose this question to get the students thinking about the idea of gas rationing. They have heard the word but many don't understand it.

You and four other people were stranded in the desert two days from the nearest source of water. You and your group have only two gallons of water left. You would all like to make it to safety and water. What could you do to make your chances of survival better?

This may be presented as a written lesson but probably better results will be found if it's done orally.

This should lead to a discussion of rationing natural resources as a way to meet our growing needs.

Writing lesson: If all the I.C. engines were to stop working because of a severe fuel shortage people in what kinds of jobs would lose their jobs? What new jobs might be required?

EVALUATIVE ACTIVITY: *Describe the function and parts of a carburetor.*
Explain how a 4-cycle engine operates and use a diagram to illustrate.
What is a fossil fuel?

LESSON 4

CONCEPT: Many natural resources are used and then become pollutants.

MATERIALS:
I.C. engine
cotton
tongs
air sampler
noise level indicator
candle
glass jar
candle holder
film - "Noise is Pollution Too" (15 min., a good film)

PROCEDURE: This could be a place to review the exhaust products that are harmful to man that were listed in lesson #1.

What else comes out of the exhaust of an I.C. engine besides the invisible gases? We can find out by holding this piece of cotton with the tongs in front of the muffler.

Let the engine run only a short time as the cotton may get hot and burn. Examine the cotton and observe what residue is on the cotton.

Place a small candle in a holder, light it, and place the bottom of the jar just over the flame to catch the residue from the flame.

Where did this black material come from? (Carbon)

Generalize from this that any combustion produces visible residue. All have observed smoke from a fire.

By 1985, air pollution will have reduced the amount of sunlight reaching the earth by one half. What could happen if this continues?

The air pollution control team for the county might agree to visit the class to discuss its function. How many jobs have been created by our awareness of environmental control problems?

Right now over major cities, air pollution has reduced the sunlight by one-eighth to one-fourth. A drop in average temperature of 4^{0}-5^{0} over the entire earth resulted in the last ice age, scientists tell us. Since 1940-50 the average temperature has dropped $1/2^{0}$ -- probably a result of reduced sunlight reaching the earth because of air pollution.

The oil in the crankcase is also a fossil fuel just like the gasoline. We are now going to drain the oil and examine it.

Drain the oil and let each student feel the oil for suspended particles, smell it, and observe the black color. *Where do these impurities come from?*

What happens to dirty motor oil? 300 million cars in the world change oil every 2,000 miles, 3-4 quarts each time, results in a lot of dirty oil.

What could be done to save some of this oil? (Possible solutions - better filter systems, recycling.)

Write a letter to each of the major oil companies and ask them what they are doing about dirty oil. (Texaco, Union 76, Exxon, Gulf, Arco, Standard, Douglas). Ask them if they recycle any oil. Are there any local service stations that take dirty motor oil?

The U. S. used to be able to meet its own demands for the raw materials necessary to run the various transportation systems, but this is no longer the case.

Check in World Almanac:

1. How much oil the U. S. imports.
2. How much bauxite, (aluminum) iron ore, etc.

Gasoline consumption is determined by computing how many miles per gallon of gasoline an automobile will travel. This is done with this division problem: Distance in miles divided by gallons of gas = miles per gallon (mpg).

Practice problems:

1. 240 miles on 12 gallons of gas (20 mpg)
2. 150 miles on 10 gallons of gas (15 mpg)
3. 284 miles on 15 gallons of gas (15 13/15 mpg)
4. 318 miles on 12 gallons of gas (26.5 mpg)

Depending on the ability of students, this exercise may involve decimals, fractions, and rounding off.

If the average mpg is 15, average annual mileage is 12,000 miles and there are 110 million cars, buses, and trucks in the U.S., what is the yearly consumption of gas by these vehicles in the U.S.? (88 billion gallons)

What is the mpg for your parent's car? How many gallons of gas do they use in a year? How many quarts of oil do they use?

If gas costs an average of 40¢ a gallon, how much do your parents spend on gas in a year? If oil costs 35¢ a quart, how much do they spend for oil in a year?

How long can we continue to use fossil fuels at this rate? What can we do to slow down the consumption? Accept all possible answers. This question will be proposed in a later lesson also.

You may end the lesson here and continue with noise pollution and air sampler next session.

Noise is pollution also. Show film, Noise is Pollution Too (a good film). Noise level indicator can be borrowed from Bill Guise at ERAC. Check the decibel reading of various sounds around the school. Especially effective if near the airport. Noise level indicator can be especially effective if students are allowed to measure the decibel readings in many situations. Check a busy street, near a school bus, airport noise area, in the classroom when the I.C. engine in the kit is running, etc.

When noise approaches 130-140 decibels (threshold of pain) it can impair or permanently damage your hearing. Some common noise levels are:

1. *Conversational speech -- 60 dbA*
2. *City traffic -- 90 dbA*
3. *Lawn mower (gas) -- 98 dbA*
4. *Jet airliner --115 dvA*

What methods of muffling these sounds could you suggest?

Run the air sampler in the room for one hour. Check filter paper and replace with new one. Run sampler outside school building for one hour. Compare indoor and outdoor filters. May run sampler in room after engine has been running also to see if engine has added particulate matter to the air.

SUGGESTED EXTRA ACTIVITIES:

The students could change the oil in several automobiles (parents' or teachers') and charge the same as a service station. *What skills are required? What if it's done incorrectly? What will you do with the dirty oil? How do you feel when you are working on a real car?* Lawn mowers could be used here also.

What could be done with the money? What's the cheapest place to buy oil for the engines? Does it matter which oil is used?

LESSON 5

CONCEPT: The search for fuel creates environmental problems.

MATERIALS:
goldfish
elodea
jar
water
wall map
road map
atlas

PROCEDURE:

In the next 30 years, the U.S. will consume more energy than it has consumed in its entire history. The worldwide demand will triple.

Where will we find this amount of fuel? Are there sources of fuel in the ground that man has not tapped?

Offshore drilling is a source for large supplies of oil reserves. Letters could be written again to the large oil companies asking for information concerning their offshore prospecting for oil. Ask them what precautions they are taking to prevent spills and leaks. Another hazard is the danger of fire.

Call a Marine Biologist (Highline College) to visit the classroom to discuss the hazards to marine life as well as jobs in the area of pollution control.

Super tankers that carry large amounts of fuel from the source to the point of consumption. *What problems are created by these huge ships?*

Discussion of oil spills as a result of an accident or collision involving a tanker. Can use examples from Puget Sound.

Find out what is done to clean up the oil after it has spilled. (Detergents, collecting booms, hay nets, etc.)

The Alaska pipeline is being constructed to bring oil from the North Slope to the U.S. The pipeline itself would cross 4,800 ft. mountains, 23 rivers, 124 streams, and 3 active earthquake zones. What problems for our environment can you see as a result of this?

Use wall map of Alaska to show North Slope and roughly where pipeline is proposed to go.

There are other needs that our transportation systems have that use natural resources and affect our environment. Concrete and asphalt cover almost 4 million linear miles of earth in the U.S. This dead concrete replaces oxygen producing plants and topsoil. It takes nature 500 years to produce one inch of fertile topsoil.

Important part of Procedure: Stress the point that technology properly used and applied is good (increased production and more efficient use of raw materials).

This is also a good place to mention the fact that these problems are important to all of us but there are things that we can do as individuals that can help. If we are really dedicated to solving these problems we have to be willing to do something about it. Examples: use a hand mower, ride a bike instead of drive or get a ride, make more efficient use of public transportation, etc.

EVALUATIVE ACTIVITY:

Name three ways of getting oil from its source to its place of consumption.

SUGGESTED EXTRA ACTIVITIES:

Dechlorinate a quart of tap water. Place a goldfish in the jar and then create an oil slick with just enough motor oil to cover the surface of the water. Observe what happens to the fish. This activity could be accomplished with just some elodea in the water but would not be as dramatic. Would be best to use both plant and animal to demonstrate what oil does to living things.

Write letters to congressmen asking what precautions have been taken to protect the environment in pipeline area.

A debate over the Alaska Pipeline could be set up with one side presenting arguments in favor, others against. They would need to do some research to present their position. *Could the gas shortages be a political move by the big oil companies to push for the completion of the pipeline?*

Get a road map of the U.S. (or any state) or an Atlas that shows roads and look at the network of freeways and highways.

LESSON 6

CONCEPT: Man's consumption of natural resources depends on what man perceives to be his needs.

MATERIALS: World Almanac

PROCEDURE: *Make a list of things in your home that are necessary, but would have been considered luxuries in the past.*

Discussion of the desire for people to have as many labor saving devices as possible and to keep up with the neighbors.

Written lesson: If you could turn back the clock 100 years, describe a day in your life. Some things probably would not have changed but the majority of daily tasks would be quite different. What kinds of jobs would people have?

Ask your parents or grandparents, if possible, what things they have seen become necessities of modern life that were considered luxuries or didn't exist when they were kids.

Written lesson: Turn the clock ahead 100 years. What things that are considered luxuries now, might be considered necessities then? What jobs might be available in 100 years that are not available now?

Many of the things that have become necessities consume energy of some kind. All of them probably have contributed to pollution in our environment either directly or indirectly.

Have students point out how these necessities either pollute or use up our natural resources.

Have a student use the World Almanac to look at the financial situation of a country whose economy is based on an abundance of one important natural resource. Arabia may be a good example. You or your students may be able to suggest others.

What problems could you foresee as a result of basing a country's financial economy on one product? (The resources for the product may be used up, a substitute may be developed, demand may be lowered, may lose resource to stronger nation, etc. Accept all possible answers.)

EVALUATIVE ACTIVITY: *What is the danger in a one-product economy?*

LESSON 7

CONCEPT: Natural resources are limited and irreplaceable.

MATERIALS: Film - A Matter of Time

PROCEDURE: Show the film, A Matter of Time. Discussion of film and what the producer of the film was trying to get across with the film.

Do you think that we will ever run out of the natural resources that are necessary to build and operate our I.C. engine like the one in the kit? Discuss.

Can you think of any natural resources that have already been used up?

What are the alternatives?

During World War II, there were demands for many materials necessary for the war effort that were no longer available. The result was that substitutes had to be found. This may be the solution to the shortages we face with our own natural resources today.

LESSON 8

CONCEPT: Man, through technology, creates substitutes for natural resources.

PROCEDURE: *How many things can you name that are made out of plastic that you use every day? How long have plastics been in existence? Do you think plastic was discovered by accident or was someone actually trying to invent it?*

Plastic can be used as an example to point out the fact that substitutes can be developed to help conserve our natural resources.

Can you name some things that are made out of plastic that formerly were made from other materials?

New sources of power have to be discovered also. What are some new sources of power that we are using now? What problems do they create for our environment?

Nuclear electric plants produce tons of radioactive wastes that must be stored or disposed of in underground vaults or ocean dumping. They also emit radioactive gases. They need tremendous quantities of water for cooling purposes and for that reason they are usually located close to large bodies of water. By returning the heated water to the river or lake they cause thermal pollution. Thermal pollution can directly destroy some forms of aquatic life or disrupt lower links in the marine food chain.

Could ask a marine biologist to come and discuss the problems of putting heated water into rivers, lakes, and bays.

New forms of transportation must also be developed. Can you see any way that we will be able to keep our present forms of transportation and still protect our environment?

Have some students, either individually or in pairs, do some research on these (or others that you or your class come up with) and report back to the class on them:

1. Wankel engine
2. Natural gas powered cars
3. Electric cars
4. Turbine power

What effect might mass rapid transit have on the power shortages and pollution problems?

EVALUATIVE ACTIVITY: *Why does it take a crisis to get people motivated into action?*

Get a model of a Wankel engine and examine it.

LESSON 9

CONCEPT: Man's attitudes have resulted in considerable pollution problems.

MATERIALS: Film - Air Pollution - A First Film (8 minutes)
film projector

PROCEDURE: *How do you see the future of man if he is unable to work with the pollution problems?* Accept all answers.

Let's take a look at one form of pollution - air pollution. Show film. Discussion to follow.

What does air pollution do?

Air pollution costs us over $16 billion a year, which is about $65 for each American. This is not the greatest cost, however. Air pollution shortens our lives by contributing to emphysema, bronchitis, lung cancer, common colds, pneumonia, and bronchial asthma. (More spelling words)

Facts from Needed: Clean Air - U. S. Environmental Protection Agency:

1. Smog kills 20, Donora Pennsylvania. 5900 sick - 1948.
2. New York smog causes more than 700 deaths over normal 1953, 1963, 1966.
3. 1952 London smog kills 4,000 in 4 days.
4. 1962 London smog kills 700.

Other areas of pollution are just as serious and as dangerous.

What has caused the large increase in pollution producing materials in our world?

If the discussion slows you may suggest the idea that man's own attitudes have caused it.

1. Man's demand for labor saving devices. (name some)
2. Man's faster and more hectic pace. (give examples)
3. Man's demand for quantity rather than quality. (mass production, assembly line - today's automobiles are a good example)
4. Man's attempts to produce cheaper products. (Competition forces him to make a less efficient and poorer quality product in order to compete on the market.) This is open to debate and discussion should be encouraged.
5. Man's tendency not to think about the future effects of present day actions.

EVALUATIVE ACTIVITY: What are some human problems caused by air pollution?

Have ready for the next lesson: Assume that you have been appointed by the governor to set up a program to convince the people of your state that all I.C. engines should be banned from streets and highways. You may use all the communication devices (T.V., radio, newspaper, magazines) as well as guest speakers. Have sample ads, posters, etc. ready to present. Your salary will be determined by how convincing your program is.

LESSON 10

CONCEPT: Survival of the reasonable man in the future will depend on decisions made in the present.

MATERIALS: Film - From the Face of the Earth
film projector

PROCEDURE: Show the film, From the Face of the Earth, without an introduction. Teacher should preview film first.

Film can lead to an interesting discussion or creative writing lesson.

Would or could you live like that? What things looked good to you? What things looked bad? Could you tell where this was filmed? (Seattle)

Have students present their programs for banning the I.C. engine. (Activity from Lesson 9)

We need to have the answers to these questions at the local level:

1. *Is our city and state participating fully in the opportunities authorized by the Federal Clean Air Act?* (Have someone find out what is in this act.)
2. *Does industry in Seattle use control devices for smoke and gases?*
3. *How is trash taken care of?*
4. *Do community planners consider air quality in making their decisions?*
5. *Does the Port of Seattle have any control over air and noise pollution around Seattle-Tacoma Airport?*

We can write letters to the mayor, the governor, and other state officials to find the answers to these and other questions concerning these problems. The U.S. Environmental Protection Agency and the Year 2000 Commission could also help us answer these questions.

Is it feasible to ban all devices that pollute our environment? No. Therefore, we must rely on the reasonable man to legislate protection laws and to use common sense if he is to survive.

What does this mean for me? What is my role? We all strive to be reasonable so it becomes our responsibility.

For your convenience the films used in this ELE are listed on this tear out sheet. Simply add the dates required and mail to the Instructional Material Center, ERAC.

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